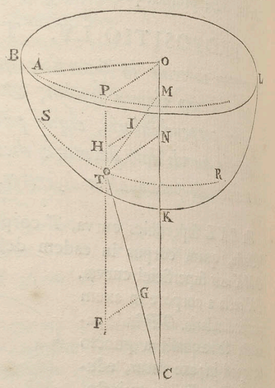
De Motu Corporum

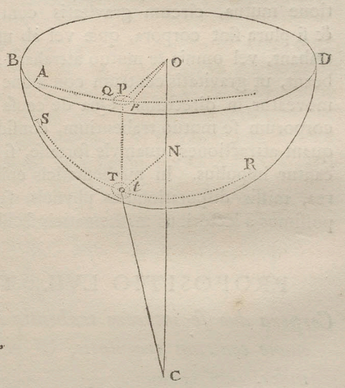
G & *I* in parallelam illam *PHTF* perpendiculariter demiſſæ. Dico jam, quod area *AOP*, radio *OP* ab initio motus deſcripta, ſit tempori proportionalis. Nam vis *TG* (per legum corol. 2.) reſolvitur in vires *TF*, *FG*; & vis *TI* in vires *TH*, *HI*: Vires autem *TF*, *TH* agendo ſecundum lineam *PF* plano *AOP* perpendiculârem mutant ſolummodo motum corporis quatenus huic plano perpendicularem. Ideoque motus ejus quatenus ſecundum poſitionem plani factus; hoc eſt, motus puncti *P*, quo trajectoriæ veſtigium *AP* in hoc plano deſcribitur, idem eſt ac ſi vires *TF*, *TH* tollerentur, & corpus ſolis viribus *FG*, *HI* agitaretur; hoc eſt, idem ac ſi corpus in plano *AOP*, vi centripeta ad centrum *O* tendente & ſummam virium *FG* & *HI* æquante, deſcriberet curvam *AP*. Sed vi tali deſcribitur area *AOP* (per prop. 1.) tempori proportionalis. *Q. E. D.*



Corol. Eodem argumento ſi corpus, a viribus agitatum ad centra duo vel plura in eadem quavis recta *CO* data tendentibus, deſcriberet in ſpatio libero lineam quamcunque curvam *ST*; foret area *AOP* tempori ſemper proportionalis.

PROPO-

PROPOSITIO LVI. PROBLEMA XXXVII.

Conceſſis figurarum curvilinearum quadraturis, datiſque tum lege vis centripetæ ad centrum datum tendentis, tum ſuperficie curva cujus axis per centrum illud tranſit; invenienda eſt trajectoria quam corpus in eadem ſuperficie deſcribet, de loco dato, data cum velocitate, verſus plagam in ſuperficie illa datam egreſſum.

Stantibus quæ in ſuperiore propoſitione conſtructa ſunt, exeat corpus *T* de loco dato *S* ſecundum rectam poſitione datam in trajectoriam inveniendam *STR*, cujus veſtigium in plano *BLO* ſit *AP*. Et ex data corporis velocitate in altitudine *SC*, dabitur ejus velocitas in alia quavis altitudine *TC*. Ea cum velocitate dato tempore quam minimo deſcribat corpus trajectoriæ ſuæ particulam *Tt*, ſitque *Pp* veſtigium ejus in plano *AOP* deſcriptum. Jungatur *Op*, & circelli centro *T* intervallo *Tt* in ſuperficie curva deſcripti veſtigium in plano *AOP* ſit ellipſis *pQ*. Et ob datum magnitudine circellum *Tt*, datamque ejus ab axe *CO* diſtantiam *TN* vel *PO*, dabitur ellipſis illa *pQ* ſpecie & magnitudine, ut & poſitione ad rectam *PO*. Cumque area *POp* ſit tempori proportionalis, atque ideo ex dato tempore detur, dabitur angulus *POp*. Et inde dabitur ellipſeos & rectæ *Op* interſectio communis *p*, una cum angulo *OPp* in quo trajectoriæ veſtigium *APp* ſecat lineam *OP*. Inde vero (conferendo